



## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference BIF023065/DM	<b>FOR FURTHER ACTION</b>	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/FR2002/004383	International filing date (day/month/year) 17 décembre 2002 (17.12.2002)	Priority date (day/month/year) 28 décembre 2001 (28.12.2001)
International Patent Classification (IPC) or national classification and IPC B81B 7/00		
Applicant COMMISSARIAT A L'ENERGIE ATOMIQUE		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 28 juillet 2003 (28.07.2003)	Date of completion of this report 06 February 2004 (06.02.2004)
Name and mailing address of the IPEA/EP	Authorized officer
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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2002/004383

**I. Basis of the report**

1. This report has been drawn on the basis of (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

 the international application as originally filed. the description, pages 1-11, as originally filed,  
pages \_\_\_\_\_, filed with the demand,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_. the claims, Nos. 1-18, as originally filed,  
Nos. \_\_\_\_\_, as amended under Article 19,  
Nos. \_\_\_\_\_, filed with the demand,  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_. the drawings, sheets/fig 1/5-5/5, as originally filed,  
sheets/fig \_\_\_\_\_, filed with the demand,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

 the description, pages \_\_\_\_\_ the claims, Nos. \_\_\_\_\_ the drawings, sheets/fig \_\_\_\_\_

3.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	7, 13, 17	YES
	Claims	1-6, 8-12, 14-16, 18	NO
Inventive step (IS)	Claims	13	YES
	Claims	1-12, 14-18	NO
Industrial applicability (IA)	Claims	1-18	YES
	Claims		NO

## 2. Citations and explanations

## 1. Reference is made to the following documents:

D1: PATENT ABSTRACTS OF JAPAN, vol. 1998, no. 09,  
 31 July 1998 (1998-07-31) & JP 10 112548 A  
 (DENSO CORP) 28 April 1998 (1998-04-28);

D2: US-B1-6 294 402 (LAU JAMES CHUNG-KEI ET AL)  
 25 September 2001 (2001-09-25);

D3: US-A-5 668 033 (KANAMORI KATUHIKO ET AL)  
 16 September 1997 (1997-09-16).

2. The present application does not fulfil the requirements set forth in PCT Article 33(1) because the subject matter of claims 1 to 6, 8 to 12, 14 to 16 and 18 does not comply with the requirement of novelty defined in PCT Article 33(2).

2.1 Document D1 describes (figures 1 to 17; the references between parentheses apply to said document):

a method for sealing two wafer levels in a microstructure, characterised in that it includes

the following steps of:

- depositing, on the surface of a first wafer level (1), a first edging strip (21) including an "upper" edging strip (21) consisting of a film of sealing material capable of spontaneously interdiffusing with the material of the second wafer level (22), and a "lower" edging strip (16, 3, 2) consisting of an adhesive material capable of causing said first wafer level (1) to adhere to said sealing material, and depositing a second edging strip (24-28) consisting of a film of said sealing material on the surface of at least one projection (23);
- contacting the two portions to be assembled; and
- heating the sealing area to cause said sealing material to interdiffuse with the material of said second wafer level (22).

It follows that the subject matter of claim 1 is not novel (PCT Article 33(2)).

2.2 Dependent claims 2 to 8 do not contain any features which, in combination with the features of any one of the claims to which they refer, might define subject matter that fulfils the PCT requirements of novelty and/or inventive step for the following reasons:

- the additional features in claims 2 to 6 and 8 are disclosed in D1 (PCT Article 33(2));
- the features in dependent claim 7 have already been used for the same purpose in a similar method (see D2, column 3, lines 28 to 30). It is

obvious for a person skilled in the art to use these features with a corresponding effect in a method as per document D1 and thereby arrive at a method as per claim 7 (PCT Article 33(3)).

2.3 Document D1 describes (figures 2 and 3; the references between parentheses apply to said document):

a sealing area for two wafer levels in a microstructure, characterised in that it includes at least the following portions:

- a "lower" edging strip (16, 3, 2) positioned on a first wafer level (1) and consisting of an adhesive material capable of causing said first wafer level (1) to adhere to a sealing material capable of interdiffusing with the material of the second wafer level (22);
- a film of said sealing material positioned on said lower edging strip (16, 3, 2); and
- a projection (23) positioned on said film of sealing material, which projection (23) is formed on said second wafer level (22) and contains a specific amount of sealing material.

As a result, the subject matter of claim 9 is not novel (PCT Article 33(2)).

2.4 Dependent claims 10 to 12 and 14 to 18 do not contain any features which, in combination with the features of any one of the claims to which they refer, might define subject matter that fulfils the PCT requirements of novelty and/or inventive step for the following reasons:

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- the additional features in claims 10 to 12, 14 to 16 and 18 are disclosed in D1 (PCT Article 33(2));
- the features in dependent claim 17 have already been used for the same purpose in a similar method (see D2, column 3, lines 28 to 30). It is obvious for a person skilled in the art to use these features with a corresponding effect in a method as per document D1 and thereby arrive at a method as per claim 17 (PCT Article 33(3)).

2.5 Finally, it should be noted that independent claims 1 and 9 are not novel over document D3 either (figures 1 to 14).

3. Claims 1 to 18 fulfil the requirement of industrial applicability defined in PCT Article 33(4).